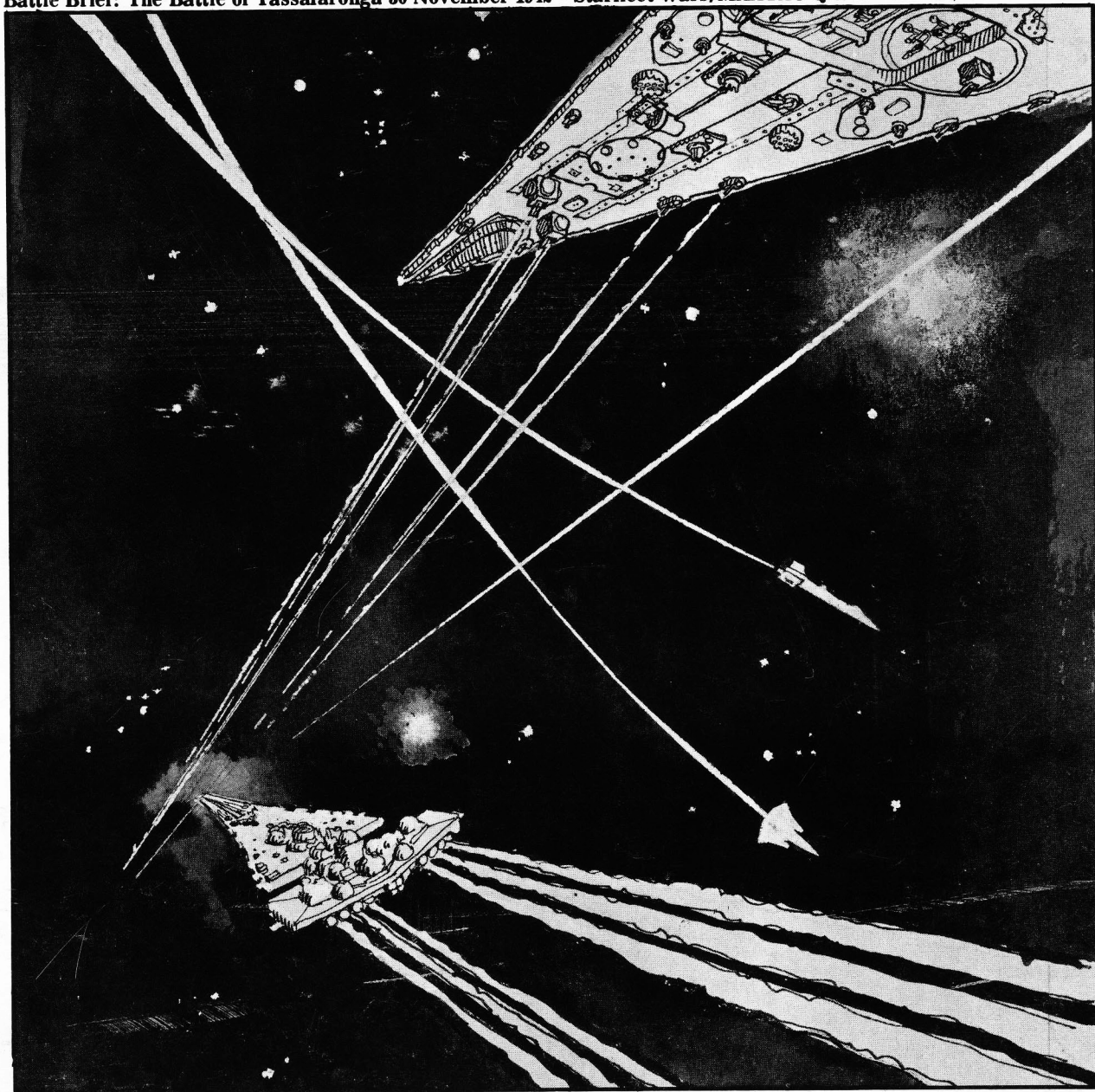


WARGAMERS FORUM

IN THIS ISSUE: The Five Worlds - A History, Part 1: Terran Contacts with the Entomalian and Avarians • Iowa vs. Yamato, A One-on-One Fantasy • Starfleet Wars Rules & Values for Superior's New Starbombers • Naval Wargame Report: Operation Rosselsprung 5 July 1942 • A Look at Naval Wargames • A Starship Conversion • Starship Data: Excerpts from a Forthcoming Recognition Manual • Super Galactic Dreadnought Values for Starfleet Wars • Naval Battle Brief: The Battle of Tassafaronga 30 November 1942 • Starfleet Wars/MAATAC Q & A • The 10,000 Point War



SPACE, NAVAL AND ARMOR WARGAMING WITH MINIATURES

WARGAMERS FORUM

Number 1 October, 1979

Published By Superior Models, Inc.
Editor & Publisher: Peter B. Paschall
Consulting Editors:
Jack Jamieson, Wayne Smith

WARGAMERS FORUM is published by Superior Models, Inc. of Claymont, De. It is available at better hobby and book stores and by mail order. All editorial material, correspondence, etc. should be sent to WARGAMERS FORUM, c/o Alnavco, Box 9, Belle Haven, Va. 23306. All material published in the magazine is © 1979 Superior Models, Inc. and becomes the property of Superior Models unless special arrangements otherwise have been made. Unsolicited material will not be returned unless requested and accompanied by a stamped, self-addressed envelope.

FORUM is edited for those who game, model and collect miniature naval ship, science fiction and armor models. Its editorial content is concentrated on but not limited to 1:1200 and 1:2400 scale models of WWII and modern warships and the

"Five World" scenario developed by Superior Models, Inc. which incorporates a Starship Fleet and Galactic Armor Corps for each world.

The magazine carries wargame reports of actions fought by our readers, articles on strategy and tactics, prototype vessels and vehicles, modeling and conversions, wargame rules and political situations and alliances.

Wargame reports and other articles are earnestly solicited from our readers and bylines will be given. Comment and discussion on any and all editorial material appearing in FORUM is solicited and will be published as space permits. It is requested that all material submitted be typed double-spaced but this is not an ironclad requirement.

Superior® Models inc



Producers of:

"Starfleet" Starship Models

"MAATAC" Galactic Armor Models

1:1200 Scale Warship Models

1:2400 Scale Warship Models

"STARFLEET WARS" & "MAATAC" Wargame Rules

90 MM Figures

Fantasy & Mythology

Military

"The Entertainers" Movie Stars

"Les Femmes Unique" Female Nudes

See your dealer for these outstanding lines!

ALNAVCO

Box 9

Belle Haven, Va. 23306

Telephone 804 442-2323

Distributed By:

COULTER-BENNETT

P.O. Box 9452

North Hollywood, Ca. 91606

Telephone 213 980-1887

THE FIVE WORLDS: A HISTORY

Part 1 Terran Contacts With The Entomalians And Avarians

By The Forum Staff

Date:
October 17, 2308 EST

Subject:
**Intergalactic Origins of the
Fourth Interstellar Conflict**

Source:
**Excerpts from the writings of
First Admiral Marc Harder**

Our repeated contacts by way of trading and warfare with other powers in the past 250 years have taught us a great deal; not only about their military prowess, but how other races have evolved and survived. These sociological and economic factors have had as much to do with an empire's success as their military capabilities. A brief review of the Five Powers involvement is in order before we take an in-depth study of the current situation.

Much of Old Earth's technology was interrupted and destroyed by the last World War in 1987. While this period remains shrouded in mystery due to the loss of many records, enough data has survived to be able to trace mankind's development through the post-atomic era. The war started among several minor countries in what is now the Mediterranean Cultural and Recreational Center, spread to Africa and Asia and eventually drew the empires of North America, Eurasia, and the European continent into conventional warfare. It remains unclear as to who fired the first thermonuclear missile; but what is clear, is that few people survived its effects.

The survivors from distant parts of the globe were able to contact each other via radio transmissions and acquired surviving transportation to reach some of Earth's few untouched regions. By 1994 the first major resettlement was established in Australia. All mankind cooperated for the first time in our history resulting in a remarkable recovery. By 2041 we had achieved a technical level superior to that enjoyed in 1987 that was in no small part achieved by great strides in energy research and rocket propulsion.

Our technical achievements during the next fifteen years were many but two overshadowed the rest. One was the high-speed underground shuttle system that connected every major city on the globe. The second was the orbiting space platforms that converted sunlight to electricity and beamed it down to an energy dependent culture. From these space platforms, shuttles were launched to explore Luna and Mars and establish our first continually manned outposts. Two manned interstellar probes were launched into deep space as our first strides into the heavens. Audio and visual contact with the probes were lost in 2060 when new transmissions overwhelmed their signals.

These transmissions proved to be an Entomalian (Bug) warfleet hunting down Avarian survivors when the Bugs attacked the outer Avarian provinces. One Avarian pilot managed to land his crippled craft on Luna Base where he and his ship attracted a great deal of curiosity and suspicion. The surviving pilot enlightened us about current intergalactic politics including the capture of one of our probes by the Bugs before the Avarians could rescue them. As it became clear that our people could be in deadly peril, we feverishly built defenses around massive laser and missile installations on Luna Base and a dozen asteroids placed in orbit around Earth.

The Entomalians interpolated the course of our captured probe that entered their battle area but had no available ship to go to the edge of the galaxy to investigate its origin. But the Bugs' memories were long, and on the fateful day July 18, 2063, a lone battlecraft appeared on Luna's long range scanners. It obviously scanned us because it didn't venture within firing range but headed back the way it had come. A week later our sensors picked up the ion trails of over forty starships closing our solar system. The Entomalians swept in, ignoring their losses, and pulverized Luna Base, the outpost asteroids and finally Earth itself. By the time they had finished their destruction our recovery had been set back 70 years.

Our short rebuilding period was due largely to help from the Avarian culture. Most of Earth was now uninhabitable due to radiation levels left over from the 20th Century as well as the residue of the Entomalian massacre. For twenty years we labored to build a new Earth but our most important population centers and manufacturing sites had to be located on Luna and Mars. At the same time our first primitive intergalactic battlefleet was constructed on the nearly weightless environs of Luna. All of mankind's illusions about a peaceful exploration of space and finding benevolent, advanced races had been shattered.

The Avarians

From our explorations during the next century we found that our scientific expectation that planets would evolve creatures able to survive the peculiar atmosphere and climactic conditions of that planet were false. In some cases life existed in spite of those conditions. A case in point was our Avarian benefactors.

Their small, dusty planets have a gravity of 0.89 compared to Earth's 1.0. This varies of course, but the home planets closely follow this formula. Vegetation is plentiful with many farms to develop the tremendous amounts of protein the Avarian's diet and metabo-

lism require. Much of the planet's surface is cultivated with fast growing grains that must be continuously irrigated because of the lack of surface water. This lack of water on the planet's surface or in shallow underground reservoirs ruins our long held evolutionary theory that life must evolve in a water environment. Even the Avarians are unable to explain with any scientific certainty how their ancestors survived the rigors of their planets.

Cities are usually built high and are spaced far apart to allow the maximum land area to be devoted to agriculture and protein farms. The architecture is simple in detail but complicated in design and form. Thin spires rising hundreds of meters into the atmosphere support their graceful cities as the legs support the weaving body of a spider. The flow and sweep of their building lines have few flat panels to mar the sculptured effect of these trade centers.

The Avarians are somewhat shorter than we are with a light, hollow bone structure. Internal organs are similar to ours with the exceptions of a duplicate liver, minor heart system and an organ of unknown function placed anteriorly to the pancreas. Their fast metabolism gives them only a marginally reduced lifespan compared to ours because their advanced medical technology has been able to compensate for the rapid degeneration typical of a species with a high metabolic rate.

The Entomalians

Entomalian lifestyles are the most structured in the galaxy. Three classes of individuals exist on their jungle planets. The Office of Galactic Intelligence (OGI) has classified 76% of the population as workers, 3% as the ruling or managerial class (code named drones) and the remaining 21% are performing military duties. Their society is strongly influenced by the military; a continuous state of war with someone is their way of life. Living quarters and 40% of the manufacturing sites are buried deep underground. The principal energy processing centers are located on the surface, along with extensive agricultural sites. All large animals (principally mammalian!) have been ruthlessly exterminated which caused such an ecological imbalance that many of the Entomalian agricultural areas suffered from an unchecked small pest population (actually a related species of the Entomalians). This caused a timely decrease in the Entomalian population that helped save the Avarians and ourselves shortly after our first contact with them in 2063. They have fully recovered now, but are in a state of technical obsolescence particularly with our introduction of the Star Base REVENGE (the newest Terran weapon, REVENGE is a mobile killer satellite capable of destroying whole planets).

The Entomalian chitinous exoskeleton serves as body armor but is not as protective as our armored infantries form-fitted plate. Their internal organs are bathed in a green mucoprotein solution that oxygenates the body's cells. Oxygen transfer takes place through pores in the thorax making them susceptible to suffocation when operating in a smokey, gaseous or liquid atmosphere. With four arms to bear weapons, plus their large numbers of soldiers, a fusillade of concentrated firepower can be directed against any target. They tend to be a little slower afoot than we, but utilization of underground trams in their tunnel complexes has caught our troops by surprise on more than one occasion.

Usually stymied by well protected sites, they try to encircle the site to isolate it and capture it later. This nullifies fortress type defenses but isn't effective

against a MAATAC Corps. The workers and drones have not proven to be a challenge to our Interstellar Assault Corps (ISAC) but the soldiers will fight to the last. They have no regard for casualties because their losses can easily be recovered in their breeding chambers.

The blood feud between the Entomalians and Avarians has existed for about four centuries. The hard working Avarians found that their meager existence carved out of their barren planets was imperiled by the Entomalian desire to secure new agricultural centers. The distance between the major planets of these two races, and the technical superiority of the Avarians, have kept the tremendous masses of Bugs at bay until recently. The Avarian nation is reduced compared to what it once was but we have resolved to relieve some of the Entomalian pressure from their

beleaguered fleet. This comes at a time when we are not bound by treaty but by our gratitude.

Our treaty with the Avarians ended when we became involved in the Carnivore-Aquarian dispute. The Avarians have been friendly with both nations and were politically embarrassed when we chose sides. We have found it difficult to support Carnivore claims on border systems because they have attempted seizure of some of our colonial planets and pirated defenseless merchant ships. The Entomalian sham of negotiations was broken when we revealed the existence of the REVENGE. The Bug's delegation has returned home leaving our military to ponder the possibility of another extended campaign.

Next Issue: The Carnivore and Aquarian Empires

IOWA vs. YAMATO

A One-On-One Fantasy

By Wayne Smith, Glen Burnie, Maryland

Much has been written about the two largest battleships ever completed, the USS IOWA and the Japanese YAMATO, and the probable outcome of their engagement had they encountered each other. There is no way to accurately predict a victor of such a meeting but it is possible to determine which ship had the better chance to survive. To do so involves a thorough examination of both ships' armaments, defensive equipment, damage control capabilities, range finding optics, and radar. In addition, battle damage reports of YAMATO and MUSASHI yield a wealth of information about their final moments in living up to their boasts about being the most unsinkable battleships ever built.

Laid down on November 4, 1937 YAMATO was the largest battleship ever built. She was 863 feet long, 127 feet wide and displaced 69,988 tons full load. She carried the largest guns ever sent afloat-18.1 inch (460mm) guns in three triple mounts firing a 3200 lb. projectile. Her secondary battery consisted of 12-6.1 inch guns while her anti-aircraft battery contained 12-5 inch guns and 24-25mm machine guns. Directing the main battery were two 15 meter range finders, one atop the tall forward control tower and one on the shorter after tower. To match her heavy guns and range finding equipment, heavy armor was installed in the form of a 410mm belt and a 200mm deck. The armor was considered sufficient to protect the ship against 18 inch shells fired from between 22000 and 33000 yards. Powering this giant were engines capable of propelling her at 27.6 knots. This ship was Japan's reply to the larger number of battleships the United States was expected to deploy.

The IOWA was rated as the fastest capital unit ever built. Powered by four shafts she easily made her designed 33 knots and was unofficially credited with bursts of 35 knots. IOWA's new 16"/50

caliber guns and twenty 5"/38 secondary made her the most powerful of the new American battleships. Anti-aircraft guns were comprised of twenty quad 40mm mounts, each with its own tracking radar, and 40 to 50 20mm guns. Protection consisted of a 310mm belt inclined at 15 degrees along with four torpedo bulkheads. Three armored decks totaled 357mm, the thickest armor ever applied to a battleship's decks. This was IOWA's answer to the dive bomber and long range plunging fire from other ships. These facts are well known characteristics of these two ships but they provide the basis for comparison of the salient features of the two vessels.

Main Battery Comparisons

Battleships are defined as heavily armored warships carrying guns of large caliber. It is the guns that are best known on these two ships so they will be compared first. Several guns and incomplete turntables for the uncompleted battleship SHINANO were captured after the war. Two guns and their training gear were sent to the Dahlgren Proving Grounds by the Naval Technical Mission to Japan. These were thoroughly studied and, with the help of many of the Japanese designers and gunnery officers, yielded information that indicated that the 18"/45 was not a significant advancement in naval ordnance. The 18"/45 could hurl a 3220 lb. projectile 46,000 yds. at 45 degrees elevation. At maximum elevation a five gun salvo had a spread of 500-600 yds., excellent results considering the size and complexity of the guns and mounting. Rate of fire was also quite good. At 3 degrees elevation loading time was 30 seconds for the shell and the 720 lb. powder charge. At 20 degrees the time was 36 seconds and at 41 degrees the time was approximately 40 seconds. None of these times allows for time on aim. These figures were obtained from ex-Japanese naval

officers by the Naval Mission. One hundred rounds per gun were carried; 60 in the rotating structure and 40 more in the lower magazines. This arrangement was necessitated by the slow machinery used to transfer shells from the magazines to the turntables. With 60 rounds per gun in the turntable it was hoped that enough ammunition would be available to fight a surface action. The 2510 ton turret could be trained at 2 degrees/sec and the guns elevated at 8 degrees/sec, good results from so massive a structure.

IOWA's punch compared very favorably with her antagonists. The 16"/50 could propel a 2700 lb. shell 42300 yards at 45 degrees elevation. The 1708 ton turret could be trained 4 degrees/sec and the guns elevated 12 degrees/sec, much faster than YAMATO's. The magazines stored 120 rpg with efficient machinery capable of delivering all the ammunition to the turrets at the rate of two rounds per minute. Figures derived by the Naval Mission indicate that the 18"/45 had marginal penetration capabilities over the 16"/50. At the muzzle an 18" shell would pierce 34" of Krupp Cemented armor, a 16" shell only 32" of KC. At 20000 yds. the 18" would penetrate 21", the 16" would pierce 20" and at 30000 yds. both would pierce 15" of KC. It can be concluded that YAMATO's guns were marginally superior in penetration but inferior in rate of fire and availability of shell.

Secondary Armament

Insignificant in most battleship actions, the secondary armament on both ships could be THE decisive factor, not in their power of penetration, but in their acute lack of protection. IOWA held a clear edge in this matchup. Her 5"/38 twin mounts carried only 1½" of armor but the turrets were well dispersed, had their own separate magazines, and were not

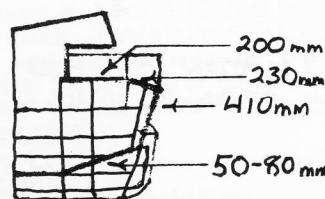
located near the main magazines, a dangerous situation should one of the secondary magazines blow up, setting off one of the main magazines. YAMATO's two triple 6" turrets had ONE inch of armor and were adjacent to the main magazines. Her after 6" turret was set on fire and blew up when pierced by a 500 lb. bomb during her last action. This in turn set off the after 18" magazine of which a spectacular photograph has been published many times. In a long range action a steeply plunging 16" shell could conceivably do the same thing. YAMATO's 5"/40 DP guns are unprotected, and bunched closely together presenting a hazard in that the destruction of their magazines could disrupt the range finders in the short superstructure. Should the mounts be set on fire the exploding magazines could hurl shrapnel through the range finders or worse, setting off a chain reaction with the other 5" guns creating fires and smoke that the personnel in the range finders could not see through. The only advantage of YAMATO's secondary armament lies in the 30,000 yard range of the 6" guns. Firing a 123 lb. shell, 5 rpm per gun, she could destroy IOWA's superstructure and radar nullifying IOWA's greatest single advantage.

Fire Control

IOWA might be able to defeat YAMATO on the basis of her radar controlled fire alone. The Mark 34 optics and her Mark 13 radar provided IOWA with the ability to accurately range on targets as far as 35,000 yards away. YAMATO's Type 21 radar was a search radar able to discriminate targets within 10 degrees of bearing and between 350 and 500 yards range of the target's position, not fine enough for fire control purposes. It could detect a battleship at 38,000 yards while the later Type 22 could reach out to 26,000 yards with slightly superior discrimination, as to exact location. YAMATO's optics were of the usual Japanese quality but they proved of little value at the Battle of Samar where she registered no hits on the slow moving U.S. escort carriers. Considering this miserable performance for a flagship that underwent daily drills and the fact that optics are of little value beyond 24-26000 yds., IOWA should be able to register far more hits with ease.

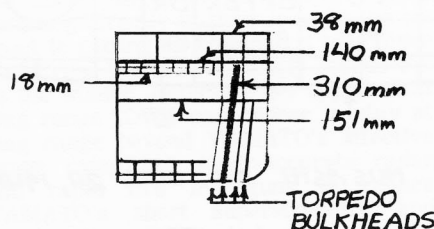
Each ship was well protected against such hits. YAMATO's 21,000 tons of armor were the most ever applied to any warship. This was an advantage of 2300 tons over her American rival but it only accounted for 34.4% of her displacement while IOWA's made up 41.6% of her weight. This indicates that IOWA's protective system shielded the ship to a greater extent than YAMATO's. YAMATO's thick Krupp cemented belt inclined at 20 degrees was suited for short range actions. With this incline, it was believed that the belt was the equivalent of 492mm of vertical armor. Mounted on top of this was a single 200mm protective deck with the other decks of only 9mm, barely enough to provide splinter protection. The armor belt

was bent under the ship to protect the engines and magazines from mine and torpedo damage. It measured 80mm thick topping a triple bottom making her the best protected ship ever built in this regard. (Fig. #1) The effectiveness of the armor was lessened where the upper and lower side armors were connected. This joint could be pierced along with the interior bulkhead by a shell driving in the plating at this point, thus exposing the large and vital engine and boiler rooms to extensive flooding.



CROSS SECTION OF
YAMATO AT "A" TURRET

FIG 1



CROSS SECTION OF
IOWA IN MACHINERY
SPACES

FIG 2

Complementing this armor system were elaborate damage control and counterflooding stations based on gunnery and torpedo tests conducted on the incomplete battleship TOSA in 1924. This provided the Japanese with comprehensive data concerning the optimal protective system against mines and torpedos. Steel tubes one inch in diameter lined the watertight bulkheads in TOSA. It was discovered that they did not absorb the shock of explosions they should have and, being so heavy, could contribute to the loss of the ship. This practice was abandoned to better utilize the weight in other protective measures. Underwater torpedo tubes were condemned because their large flats easily flooded and the war-

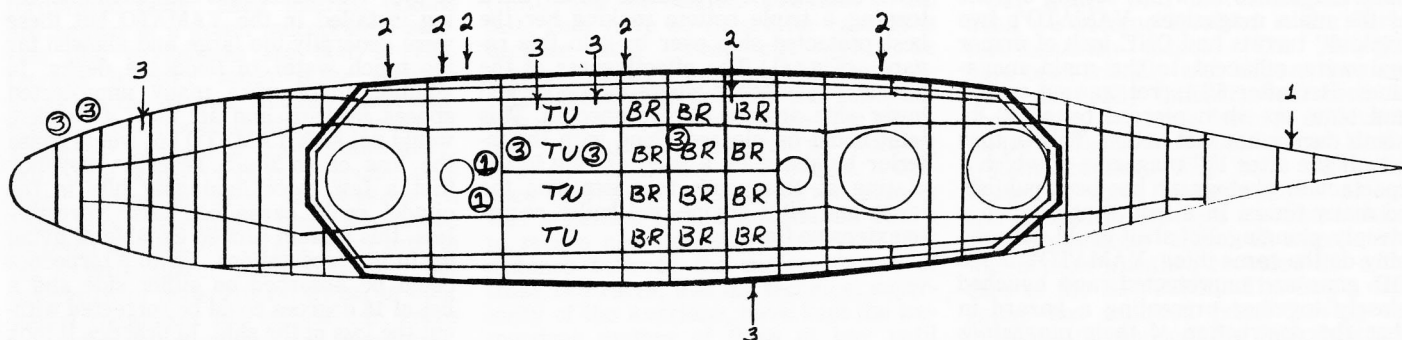
heads could explode causing severe underwater damage. The TOSA tests led to over 1100 watertight compartments being installed in the YAMATO but these were generally too large and allowed far too much water to flood the decks. In addition there were many unprotected spaces forward and aft that, if flooded, would not sink YAMATO but would cause the loss of so much reserve buoyancy that a few more damaging hits in the citadel could cause her loss. Nevertheless, this system proved capable of living up to its expectations. Up to 5 torpedoes could be absorbed on either side and a list of 18 degrees could be corrected without the loss of the ship. In practice it took much more than this before either MUSASHI or YAMATO were sunk.

Protection

IOWA's armor was not as impressive as YAMATO's. Her belt was only 310mm of armor inclined at 15 degrees but was of the new type of Moly-Chrome Steel armor representing an increase of resistance of 33%. This theoretically raised IOWA's protection to 475mm of KC armor with the 15 degrees equivalent to 15% more armor. The armor was hung on the 3rd torpedo bulkhead like the earlier SOUTH DAKOTA's. Previous publications incorrectly credit IOWA with a vertical belt on the outer shell. Behind this belt was one torpedo bulkhead and two preceding it. This would limit the influx of water to a great extent, perhaps more than her antagonists. IOWA's decks were the thickest ever built. The main deck of 38mm, the second deck of 158mm, and the lower protective deck of 161mm gave her a total of 357mm of Moly-Chrome Steel armor representing 476mm of the old KC. (Fig. #2) This system was a far cry from YAMATO's single 200mm deck. A shell penetrating the first two decks of IOWA would be armed and explode with the explosion confined by the lower protective deck, preventing damage to the engines and magazines. If YAMATO's deck is pierced there is no second deck to contain the explosion to prevent the machinery from being wrecked and useless.

IOWA's underwater system was probably the equal of her contemporaries. Her compartmentation was very extensive with smaller compartments, more watertight bulkheads, and her outer layer of voids filled with fuel oil. Damage to the outer voids would produce a list since sea water (density of 1.06) would replace the fuel oil, (density of 0.46) but far less than that of replacing air with water. This lesson was reinforced by the torpedoing of the NORTH CAROLINA in 1942 where extensive flooding occurred in the air filled voids. All of YAMATO's voids were empty capable of quick flooding or pumping to trim lists. Her fuel was carried in her triple bottom where it would be unlikely that it would become contaminated with seawater. Even with YAMATO's greater beam, she doesn't have much more width in her underwater protection since her engine rooms were aligned four abreast while IOWA's were only two abreast in her longer hull.

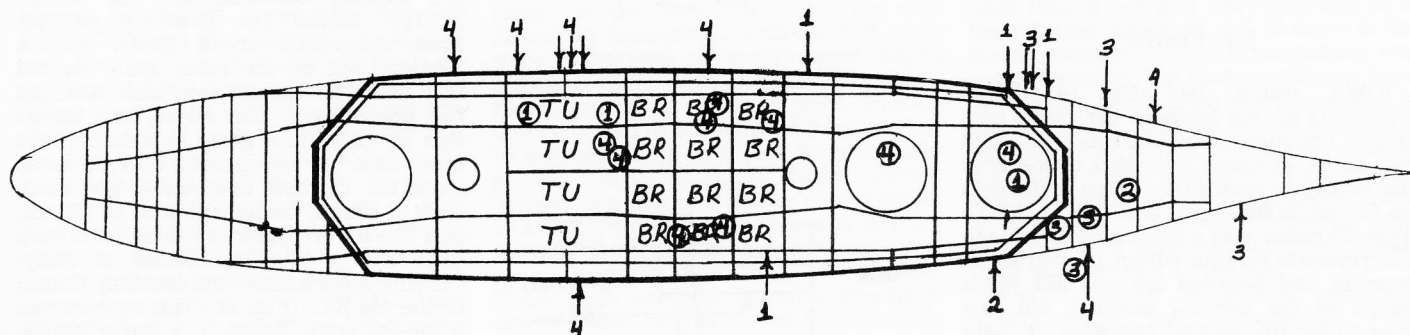
FIG 4

APPROXIMATE LOCATION OF HITS ON
YAMATO ON APRIL 7, 1945

○ BOMB HIT
→ TORPEDO HIT

1	1237 PM
2	1340 PM
3	1402 PM

FIG 3



HITS ON MUSASHI ON OCT. 24, 1944

○ BOMB HIT
→ TORPEDO HIT

1	0910 AM
2	1215 PM
3	1400 PM
4	1520 PM

In engineering YAMATO is clearly out-classed. YAMATO had 12 boilers and IOWA only 8 but IOWA's produced steam sufficient for 212,000 shp while YAMATO's lower pressure installations produced 147,000 shp, good for only 27.7 knots as compared with her opponents 33-35 knots. YAMATO's hull form and low length/breadth ratio led to her lower speed. To help increase the speed a bulbous bow was fitted that decreased water resistance by 8.2%. Neither ship travelled at their rated speeds, YAMATO generally turned 22-24 knots while IOWA kept pace with the 30 knot aircraft carriers. YAMATO's wide, high hull would be a steadier gun platform than IOWA's in rough weather. On occasion IOWA was noted to roll as much as 26 degrees which could seriously hamper her gunnery.

Neither ship could operate without disciplined, efficient crews. By late 1944 (the approximate period which these two ves-

sels would have encountered each other) the U.S. had the upper hand in gunnery fire control and damage control capabilities. The carrier FRANKLIN would never have made it home in 1942 nor would the heavily damaged DENVER and HOUSTON. This is meant to illustrate the improvements the U.S. made during the war and not to slight the Japanese. MUSASHI's and YAMATO's crews proved courageous up till the end but ships as severely damaged as FRANKLIN (e.g. AKAGI, KAGA, SORYU, HIRYU) just did not survive. ATAGO and MAYA sunk although they were hit with less powerful torpedoes than DENVER or HOUSTON. Nevertheless, since it is difficult to imagine more dedicated crews than the Japanese ships possessed, we will rate them even on this point.

The last technical details to be studied are the damage control reports of the Japanese BB's themselves. These pro-

vide considerable insight into the strengths and weaknesses of these behemoths. On 25/12/43 the submarine SKATE punched a torpedo through the weak joint between the upper and lower belts on YAMATO on her starboard side aft. The bulkhead to the after 18" magazine was pierced and 3000 tons of water flowed in. This was the first serious defect in the compartmentation revealed to the Japanese. During the Battle of Leyte Gulf she was first hit by two bombs forward allowing 3200 tons of water to flood the large storage spaces and chain lockers forward. Two more bombs hit near the forward turret causing damage but no more flooding. YAMATO ran for home and the repair yard.

MUSASHI's early history was much the same. On March 3, 1944 she too received a single torpedo hit from a submarine. Her bow absorbed 4000 tons of water before flooding could be controlled. Unlike her sister, she did not survive Leyte Gulf.

On October 24, 1944 at 0910 she was hit by one bomb that bounced off "A" turret and a torpedo on the starboard side, flooding one boiler room (Fig. 3). Two more bombs knocked out the portside engine while three torps ripped the portside. The resulting list was corrected and speed maintained by increasing the revolutions of the remaining shafts. At 1215 one bomb and one torpedo hit reducing the bow trim by almost two meters. Two hours later four bombs knocked out many AA guns and severely damaged the bow. Four more torpedoes, one starboard and three port, flooded nearly the entire bow reducing her trim by almost 4 meters. Speed fell to 16 and then to 12 knots. Eleven torpedoes and ten bombs had taken their toll. At 1520 ten bombs and nine torpedoes (concentrated mostly on the port side) caused extensive damage to the citadel. List increased to 10 degrees and water lapped around 'A' turret. Her speed was down to a crawl of 6 knots. By 1800 no engines functioned and the list was 12 degrees. At 1920 she listed 30 degrees to portside and 15 minutes later capsized and sank taking with her over half her crew. MUSASHI demonstrated a tremendous resistance to damage but succumbed to the inability of her compartmentation to withstand 20 torpedo hits, an unparalleled feat.

YAMATO was lost under similar circumstances. At 1237 on 7/4/45 her ordeal began. Two 500 lb. bombs knocked out the after control tower. A torpedo hit in the port bow caused minor flooding. At 1340 five torpedoes hit amidships portside. The resulting list was corrected to 5 degrees but electrical damage knocked out some guns and speed was decreased to 18 knots. Another torpedo destroyed a boiler. At 1402 four torpedoes (1 stbd, 3 port) and at least 5 bombs mortally damaged her. Two engine rooms and the steering compartment was flooded while the topside was wrecked. A list of 20 degrees and a speed of 10 knots was the best that could be achieved until 1415 when all power was lost. At 1418 she capsized and the after 6" magazine blew up, the result of having been pierced and set

on fire four hours earlier (Fig. 4). YAMATO's loss though could be directly attributed to the tremendous number of torpedo hits on the portside citadel resulting in an extensive influx of water.

No details are available of course to determine how good IOWA's protective system was since it was never tested. It was believed that IOWA's system was superior to NORTH CAROLINA's who took 1000 tons of water aboard when hit by a single torpedo. Even this damage is considerably less than that incurred by either MUSASHI's or YAMATO's from single hits. It is difficult to imagine a ship surviving more damage than the Japanese's but IOWA conceivably might have done it. Even if IOWA's system is better than YAMATO's, YAMATO is 12,000 tons heavier meaning you must flood that much more of the ship to sink than IOWA giving YAMATO a slight edge in this category.

Who Would Win?

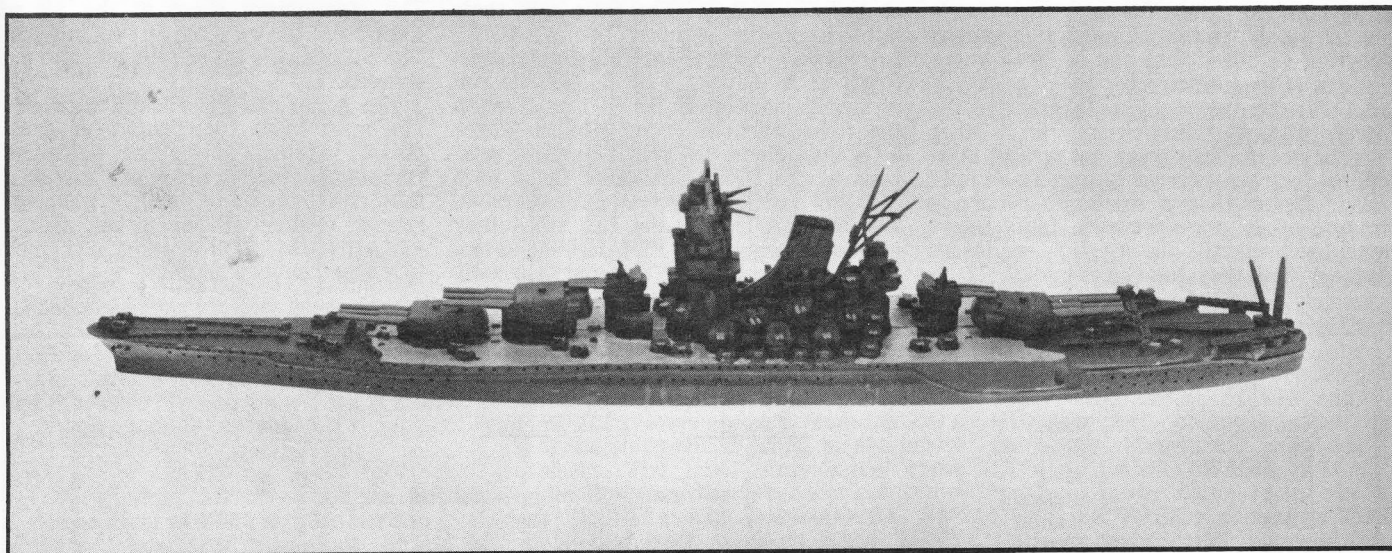
With this compilation of data I think we can determine a victor of a meeting between these two ships. Before the action begins we must bear in mind that in all single ship actions there is a degree of "luck" involved. The "luck" is in the form of who gets in the first hits in a vital area. Vital areas are magazines, turrets, electrical damage, and loss of fire control. Witness the BISMARCK's and SCHARNHORST's loss of radar in the early stages of their final actions resulting directly in their loss. In the respect to getting on target first to achieve these vital hits IOWA clearly stands out as the winner. Detecting her opponent at long range IOWA can choose to stay at long range beyond YAMATO's effective range using her super-accurate radar and rapid fire 16" guns to reduce YAMATO's short superstructure and bunched rangefinders to a shambles. The tall secondary barbettes have only 3" armor with the 6" turrets roof's having 1", hardly enough to stop a 16" shell. Even YAMATO's main 18" roofs have

only 11" of protection, insufficient to bar 16" shells at 30,000 yds. In addition, YAMATO's single 200mm deck is not proof against IOWA's guns. Allowing that YAMATO gets within effective gun range, about 26,000 yds., IOWA's superior deck armor will contain the 18" hits and her widespread superstructure gives her a better chance to retain some of her radar and rangefinding equipment. She could then shorten range pounding her larger opponent at will but this would not be enough to sink her.

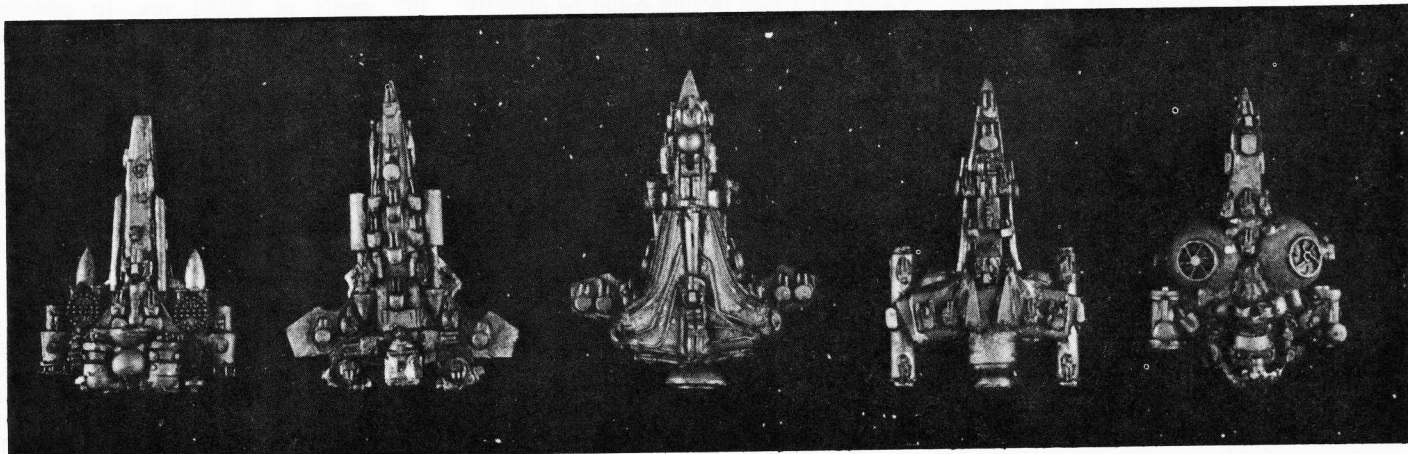
The 16" AP shells carry only a 4% powder charge or 108 lbs. (Approx.) of powder, far less than the 600 lb. torpex torpedoes that actually sank YAMATO. Battleships have always been terrific at shooting each other's superstructures apart but, excepting a magazine hit, few capital ships have been lost to gunfire alone. YAMATO's and MUSASHI's ordeals indicate the tremendous amount of underwater damage that must be done to sink them. Torpedoes or scuttling have been the coup-de-grace to many units (e.g. BISMARCK, KIRISHIMA, Hiei, FUSO). This being the case I believe IOWA would rob her opponent of the chance to use her optics to fight back. YAMATO would be reduced to a hulk, electrical systems shorted out, turrets pierced or jammed, much of the crew dead and a possible magazine explosion. But for all her efforts the IOWA would be frustrated in sinking her opponent. Destroyers would be required to add the finishing touch to the largest battleship ever built.

This is the only logical end to such an engagement. This battle has been argued long and hard for years but everyone ignores one basic fact; ONE IOWA would never have met ONE YAMATO. TEN modern U.S. battleships would have met TWO Japanese. This was the American answer to 'superior' enemy equipment and it proved to be a winning strategy in the Second World War.

I would like to thank Mr. Robert Sumrall, Curator of the Museum at Annapolis, and Mr. Peter Paschall of ALNAVCO for their assistance in gathering data for this article.



SUPERIOR'S 1:1200 SCALE MODEL OF YAMATO



SB80

SB40

SB20

SB01

SB60

STARFLEET WARS RULES AND VALUES FOR SUPERIOR'S NEW STARBOMBERS

The Starbomber's role in the galactic fleets is primarily offensive in that they are most useful escorting strike forces of starfighters or destroyers against enemy positions. Defensively, they can be used like an AA cruiser to keep starfighters from mounting a concentrated attack on capital units or provide close coverage to convoys. Their primary weapon is the particle weapon to deal with capital units supplemented with light lasers to stave off starfighters. While some approach a destroyer in size they are too lightly constructed to mount heavy lasers or thick shielding. This results in the paradox that they are too small to be invulnerable to starfighter's lasers but not small enough to avoid particle weapons or capital units heavy lasers.

A Starbomber's particle weapons are fired exactly like any other ship's in *Starfleet Wars*. These rules are found on page 11 in the rulebook. In the following table the number found under the category "factors" is the number of particle weapons that can be launched each turn. The number under the category reloads is the total number of particle weapons carried on board that can be fired in the course of the game.

A Starbomber's light lasers can be fired at starfighters, transports or other starbombers. They may **not** fire at starships destroyer size or larger. Each light laser factor that a starbomber carries may be fired once per turn. Light lasers are fired exactly like starfighters lasers except that they have a range of 12 in-

ches. These rules are found on page 14 of the rulebook under the category "Attack Craft" Unlike Attack Craft (Starfighters) the Starbomber may fire as often as it wishes only being subject to the limitation of one shot per laser factor per turn.

Starbombers may be fired at with the Offensive Factor of capital ships, the CIDS of capital ships, particle weapons of all starships or light lasers from starfighters, starbombers or transports. If they are hit once from the offensive factors or particle weapons from any ship they are destroyed. If hit by CIDS or light lasers a total of four hits is needed to destroy them. All Starbombers may travel up to a speed of 5 factors per turn.

For Starbomber values, see the table below.

Example of Play

Two STING SB patrolling a trade route at a speed of 3 are surprised at a range of 12" by a PIRAHNA SD and 8 WAHOO SF (outfitted as interceptors) travelling at 4 speed factors. The SB's split their light laser fire against the WAHOO'S firing two factors at each starfighter thus firing at a total of 4 SF's. The die roll needed to shoot down the SF's as given in the firing table is from 0 to 29. Three SF's fall! Each SB fires 4 particle weapons at the PIRAHNA achieving a total of 2 hits causing 20 power units damage. The WAHOO'S may not fire since they are out of range. The PIRAHNA fires two offensive factors and two particle wea-

pons at one SB and its CIDS at the other. The offensive factors miss but one PW hit is achieved destroying one STING SB. The CIDS makes two hits on the other SB, not enough to destroy her.

On turn 2 the SB and surviving SF's increase speed to five factors. The PIRAHNA with only 10 power units devotes 4 to speed (2 speed factors), 4 to offensive features (2 factors) and only has enough left to have a defensive factor of 1 (1 power unit). There are not enough power units left to reload the particle weapons. The range between the PIRAHNA and the STING has opened to 19". The WAHOO'S have closed to 8 inches. The starbomber fires 4 more particle weapons at the PIRAHNA leaving only two reloads on board. One hit is achieved causing the total damage to be 30 power units, enough to disable the SD and kill the entire crew. The STING fires one laser at four different WAHOO'S shooting down two of them. The SD fires with its offensive factors but misses. Its CIDS is out of range and may not fire. The starfighters shoot at the SB with their light lasers scoring two more hits. The SB has now taken four hits and is destroyed.

The Aquarians have lost 5 starfighters and must leave their destroyer drift in space without power or crew. The remaining starfighters can't tow it and they don't have any particle weapons to fire to destroy it. When last seen the PIRAHNA was still drifting, a memorial to a short, savage action.

STARBOMBER VALUES

Number	Name	Light Laser Factors	Factors	Reloads	Speed
SB01	Mars	6	4	8	5
SB20	Sting	4	4	10	5
SB40	Buzzard	5	5	9	5
SB60	Wahoo	5	4	9	5
SB80	Snarl	4	6	12	5

OPERATION ROSSELSPRUNG 5 July 1942

A Wargame Report Submitted by Steve Boren, Anaheim, California

An engagement that could have been!

ALLIED

<u>BATTLE FLEET</u>	DD MAYRANT
BB DUKE OF YORK	DD RHIND
	DD ZULU
BB WASHINGTON	DD SIKH
CA CUMBERLAND	
CL NIGERIA	
CL MANCHESTER	SUPPORTING
DD ONSLOW	FORCE
DD OBDURATE	CA LONDON
DD ECLIPSE	CA NORFOLK
DD ECHO	CA TUSCALOOSA
DD ESCAPEDE	CA WICHITA
DD FAULKNER	DD SOMALI
DD FORESIGHT	DD ROWAN
DD FORESTER	DD WAINWRIGHT
DD FOXHOUND	Carrier Aircraft
DD INGLESFIELD	VF 22
	VT 12

GERMAN

<u>TRONDHEIM</u>	DD Z24
BB TIRPITZ	DD Z27
CA HIPPER	DD Z28
DD HANS LODY	DD Z29
DD FRIEDRICH	DD Z30
IHN	
DD THEODORE	DD R. BEITZEN
RIEDEL	
DD KARL	
GALSTER	<u>Land Aircraft</u>
DD T7	VA 30
DD T15	VA 30
	VT42
<u>NARVIK</u>	VS 15
CB LUTZOW	VP176
CB ADMIRAL SCHEER	

Preparations

By June the German Navy is ready to intervene in the Arctic convoys. A shortage of fuel was the main reason for the earlier inactivity. This coming sortie code named Rosselsprung, 'Knights Move', will be carried out against convoy PQ 17. This convoy sailed from Iceland, despite strong protest from the British Admiralty, on June 27. Their ultimate destination, Archangel.

On July 1st the Germans locate the convoy. Hitler reluctantly gives the order to attack and on July 4th at 1600 the surface forces move out of their respective Norwegian Fjords. The British Admiralty receives word of these movements when the Trondheim force is spotted and reported by the Russian submarine K 22. The order has already been given that if TIRPITZ should sail, the British Home Fleet should risk the dangerous waters of the Barents Sea to engage the German battleship. The convoy will not scatter.

Action

A scouting JU 88 spots the British Home Fleet at 1700 150 miles northwest of Bear Island. An immediate attack is ordered and from the airfields of Tromsø-

Bardufoss lifts 65 large bombers. The aircraft have a long flight and take over three hours to reach their target. Only half the original number are able to find and attack the Allied fleet. However these German aircraft prove their might by landing a 2200 lb. bomb on DUKE OF YORK and hitting the American battleship WASHINGTON with a torpedo. Also the NIGERIA's B turret is destroyed by a 550 lb. bomb. All three ships will remain in action. The cost the Germans pay is four Condors, 2 JU 88's and 2 BV 183's. 24 JU 88's take off from Banak airfield at 0130. The Allied fleet comes under attack at 0340 when 14 JU 88's arrive on the scene. The DUKE OF YORK is hit once again by a 2200 lb. bomb and also a near miss. But the attack is very costly for the Germans as nine of the attackers are shot down.

The damage to DUKE OF YORK and WASHINGTON is costly but it is now believed to abort the engagement with the TIRPITZ and her consorts would reap no profits. The British Home Fleet will continue to sail into the Barents Sea, risking more attacks from the air and also U-boats. The German view of the impending battle is different. They feel the two Allied battleships have turned back in the face of heavy Luftwaffe attacks. Their main worry is the aircraft carrier believed to be accompanying the Home Fleet. With the German heavy ships now in the open sea the aircraft in Norway are ordered to attack only aircraft carriers and/or merchant ships.

The British are still unsure of the whereabouts of the German fleet. At 0700, 5 July, the VICTORIOUS launches six Albacores to begin a search for the enemy. These aircraft quickly accomplish their mission when one of them spots the German fleet only 40 miles from the British Home Fleet. The Home Fleet, along with the supporting force of the convoy, pick up speed to get themselves between the German ships and PQ 17. The convoy, which has been itself under heavy attack from aircraft and U-boats, is only 100 miles north of the Home Fleet. Therefore if the TIRPITZ and her consorts should break through, the convoy would be easily in their grasp. The remaining six Albacores from VICTORIOUS are launched to attack the German ships. These aircraft attack the Narvik force but fail to do any damage, losing one aircraft in the process. The Germans ask for Luftwaffe assistance in dealing with the carrier while they continue to head for the convoy.

At 0800 TIRPITZ picks up large ships on her radar. She sends four destroyers to investigate while she herself prepares to open fire. She does just that at 0805 but is inaccurate and causes no damage. The TIRPITZ receives reports from her DD's that the ships she is firing at are heavy cruisers. The DD's immediately come under fire from the two American cruisers WICHITA and TUSCALOOSA. 6-8" shells find their mark on HANS LODY crippling her. The TIRPITZ gives chase

after the Allied cruisers feeling that these are the only ships protecting the convoy, other than the carrier. HIPPER joins in the fight but also fails to do any damage. The Narvik force disengages the fight with the cruisers and turns north in search of the convoy. However at 0815 the Germans worst fears become reality. The battleships DUKE OF YORK and WASHINGTON are spotted. All three ships immediately open fire on each other. In 10 minutes DUKE OF YORK receives four hits causing heavy damage and the BB temporarily drops back. The HIPPER finds the range on CL MANCHESTER and scores heavily. However, TIRPITZ realizes she is heavily outgunned and reverses course to try and join up with the Narvik force. By this time she has already received 20 heavy calibre hits.

The Pocket BB's Engage

At the beginning of the engagement the British realized the German pocket battleships had not been spotted yet. To deal with this force the British have designated the cruiser support force, which has just broken off action with the TIRPITZ. Until these ships can reach the scene, 6 DD's will engage the Narvik force. At 0820 the destroyers open fire. RICHARD BEITZEN and Z24 are both heavily damaged but remain in action. The main target for the British squadron is the pocket battleships, which have given them the only return fire. It appeared that they would get at them with no difficulty, but at 0825 the two large ships turn sharply away and five minutes later all six German DD's join in the action. The effect is immediately felt as FAULKNER, FOXHOUND, and FORESTER are bracketed with shells and heavily damaged. The British continue to concentrate their fire on the two damaged German DD's and both are sunk. This turns out to be a fatal mistake as events will later show.

The two heavy ships of the Narvik force open fire on DUKE OF YORK at 0830. Several hits are registered but the 11" shells fail to do any appreciable damage. THE DUKE OF YORK is unable to train her guns on TIRPITZ and switches fire to LUTZOW. CUMBERLAND joins in and scores first followed by 2-14" hits from DUKE OF YORK. Along with several other 8" hits LUTZOW is heavily damaged and speed is reduced to 15 kts. The Trondheim force recognizes the fact that the Narvik force is up against 14" shells which they certainly cannot withstand. Since TIRPITZ has not been hit for 10 minutes, the German ship turns and runs hoping to draw the attention of both Allied BB's. At the same time HIPPER parts company, after heavily damaging Manchester, to deal with CUMBERLAND. WASHINGTON, who has been hit by six more 15" shells, and DUKE OF YORK pursue after TIRPITZ. Each score two more hits and the German battleship is slowed down to 24 kts.

The HIPPER runs into more than CUMBERLAND as the four CA's of the cruiser support force have arrived on the scene. The British contingent of the squadron opens fire but the range is too great and only two hits are scored. HIPPER's return fire is once again very accurate as CUMBERLAND is rocked by seven hits. However the volume of fire from the Allied cruisers takes its toll and at 0845 HIPPER's A and B turrets are put out of action. HIPPER and ADMIRAL SCHEER both turn and run, as the large German ships are in full retreat. Not so for their destroyers.

German DD's Excel

The four remaining German DD's completely outduel and outmaneuver their six British counterparts. FORESIGHT and FORESTER are brought to a halt and later dispatched by torpedos from Z28 and Z29 respectively. Z27 successfully lures ECLIPSE and ECHO away from the main area of action leaving the damaged FAULKNAR and FOXHOUND in the hands of the German DD's Z30 torpedos and sinks FAULKNAR. By this time the ECHO and ECLIPSE realize the hopelessness of the situation and withdraw. Only Z28 and Z30 have been damaged and they are still playing an active part in the battle. FOXHOUND proves to be a tougher opponent to put under. Z27, which had doublebacked after the previous escape, misses with her spread of torpedos. HANS LODY and ADMIRAL SCHEER join in but FOXHOUND continues to fight back. Her gunfire slows down Z28. The DD's SOMALI, WAINWRIGHT, and ROWAN, leading the cruiser support force, open fire on Z27 causing slight damage but the implications mean that all Allied ships are now engaged in the battle. ADMIRAL SCHEER and HIPPER finish off FOXHOUND.

In her retreat TIRPITZ slowly opens the range between her and the two Allied BB's. This effects her return fire and from 0840 to 0900 not a single hit is scored. During this time she herself is only hit by 6-14" shells as WASHINGTON is unable to find the range also. DUKE OF YORK drops behind as the 11" shells from LUTZOW and ADMIRAL SCHEER slow her down to 21 kts. DUKE OF YORK's 5.25" guns open up on LUTZOW and repeatedly score hits. The cruiser support force, after scoring a few more hits on HIPPER, switch fire to LUTZOW. The pocket battleships turn their guns against the cruisers and along with help from HIPPER heavily damage LONDON and NORFOLK. But at 0855 the turning point of the battle is reached as TIRPITZ is hit by 7-16" shells in quick succession slowing her down to 21 kts. At this speed she cannot outrun the two Allied BB's and the range between them is quickly closing. With her 15" ammo very low the TIRPITZ decides to turn and fight. Her DD's, which have been accompanying her are ordered to run for it along with the other German ships. LUTZOW is the only ship that cannot follow these orders and she sinks at 0910.

Tirpitz vs. Washington

The WASHINGTON is surprised to find the TIRPITZ sailing toward her. The American BB refuses to back off and continues on her course. The TIRPITZ is repeatedly hit by 16" and also 14" shells. Finally, when the range less than 5 miles, the WASHINGTON realizes she cannot stop the German battleship and attempts to widen the range. However it is too late and TIRPITZ 15" shells finally begin to find their mark with consistency. WASHINGTON is battered and has to find refuge under a smoke screen laid by 2 DD's. TIRPITZ's radar has been destroyed and is unable to hit the WASHINGTON while she is concealed. DUKE OF YORK expects she would soon be fired on but to her surprise she is not. TIRPITZ has used almost all of her 15" shells. Although WASHINGTON still has five large guns operational she has only a few rounds of 16" shell left. DUKE OF YORK's 14" shells have proved ineffective against TIRPITZ armor so the British release 5 DD's to torpedo the German BB. However the British underestimate the TIRPITZ firepower and before the DD's get within five miles they are driven off by the secondary guns of their target. INGLEFIELD and RHIND were both heavily damaged in the abortive attempt. The British bring in CUMBERLAND and NIGERIA while DUKE OF YORK resumes firing. The TIRPITZ replies by using her last 15" rounds with no results. Several 14" shells find their mark on TIRPITZ slowing her down still further. The two British cruisers get into position by 1020 with NIGERIA suffering only slight damage in the approach. Twelve torpedos are launched and seven find their mark. This is enough to finally sink the pride of the German fleet.

The Luftwaffe Attacks

The only force that had a chance to turn the battle in favor of the Germans was the Luftwaffe. However the majority of the aircraft have been attacking the convoy as dictated by orders. But at 0840, when the surface engagement was raging, a force of four JU 88's spots the carrier VICTORIOUS. Within a half hour 12 more JU 88's are diverted to the carrier. Ten of them are shot down attempting sporadic attacks by British VF. Only one hit is scored on VICTORIOUS causing slight damage. Flak claimed one more German bomber. The Germans prepare two more strikes. From Kirkenes 16 JU 88's take off, followed by 21 HE111 from Banak. At 1100 ten JU 88's arrive but are intercepted by British VF and seven are shot down while one more is flamed by VICTORIOUS. No damage is done to the British ships. The HE111's arrive shortly after and once again the British VF are waiting but this time they cannot protect their carrier completely. Although flaming ten aircraft plus two more shot down by VICTORIOUS the Germans put a torpedo into the British carrier. The damage is heavy but the carrier can continue with operations.

The battered Allied fleet is meanwhile trying to get back home at a speed of 12 kts. That is the best speed the WASHINGTON can make. VICTORIOUS has rejoined the fleet but with seven less fighters leaving only 15 to battle the German bombers. Fearing repeated German attacks the decision is made to scuttle the American BB and fleet speed is picked up to 21 kts. However the Luftwaffe is now putting all its effort on the convoy. The tremendous losses suffered in the attack on the VICTORIOUS has given the British Home Fleet a safe voyage home.

Conclusion

The sinking of the TIRPITZ will alone suffice for a British victory. The cost was high but the Allies can well afford and with the "Queen of the North" disposed of, the trek of the arctic convoys will be that much easier. As for the fate of PQ17 itself, using the other PQ convoys as a guideline, it can be said that about 12 merchant ships would be sunk at the hands of the Luftwaffe and the ten U-boats in the area. This dozen is certainly a small amount compared to the amount that would have been sunk if the German heavy ships would have succeeded in making the intercept or if the convoy would have scattered.

SHIPS SUNK

WASHINGTON	35,000
FAULKNAR	1,475
FOXHOUND	1,350
FORESIGHT	1,350
FORESTER	1,350
TOTAL	40,525
TIRPITZ	42,900
LUTZOW	11,700
RICHARD BEITZEN	2,232
Z 24	2,603
TOTAL	57,435

SHIPS DAMAGED

DUKE OF YORK	30.2%
VICTORIOUS	23.6%
CUMBERLAND	17.2%
LONDON	21.4%
NORFOLK	23.3%
MANCHESTER	33.3%
NIGERIA	21.0%
INGLEFIELD	38.0%
RHIND	47.2%
HIPPER	23.7%
HANS LODY	62.0%
Z 27	13.2%
Z 28	33.3%
Z 30	21.0%



North Carolina Class



A LOOK AT NAVAL WARGAMES

By Bob Gryga, Grand Rapids, Michigan

Wargaming with miniature armies, navies, or air forces tend to put the "field commanders" in the position of being some completely all-knowing, all-seeing, and all-powerful diety armed with mini-computers, slide rules, and rules with formulas covering every conceivable situation more or less at the mercy of "Lady Luck" overlooking each throw of the dice! This in essence is what wargames are all about. This is also what makes them fun to play. The collecting of models, the research, the painting, the sheer pleasure and enjoyment of spending an evening locked in combat over the table moving figures or ship models have given us all hours of untold pleasure and plain downright fun! My personal feelings are that it should remain fun and end right there. To become embroiled in meaningless arguments on "IFFY" questions dealing with history that has already taken place and proven itself has the danger of taking the fun out of any type of wargaming.

By and large many of the people writing the articles probably have not been in service with the Navy, or probably have not seen a ship; even a warship; and haven't the foggiest idea of what a real battleship looks like or what life aboard ship really is like. Along with this general lack of experience with the real thing it becomes relatively simple to read up on naval history, collect some model warships, play a few games, become proficient at being a wargame admiral, and after a while qualify for the rank of armchair admiral! This is also fun and many hours can likewise be spent discussing and arguing over naval history. But to write controversial articles can really be a horse of another color.

Not meaning to be sacrilegious, "Navies as such are very expensive pieces of military hardware to own and maintain." In 1941, Major Seversky wrote a very damning book "Victory Through Airpower" in which he described in detail how worthless he felt naval power really is. It still makes for very interesting reading as some of the things he said have much merit. My naval experience took in three years of battleship duty aboard the USS WISCONSIN as a navigation quartermaster in the 50's and from what I personally experienced and saw, navies are expensive pieces of hardware in all sense of the word!

The Ship as an Art Form

When you look at any warship, try to look at it as an art form. Picture that vessel being designed by a naval architect. Try to listen to the pro and con arguments that rage within a country as to raising the needed funds to build that ship and then try to picture the actual building of that ship in the yards from the time the keel is laid until the time it is actually launched.

Once the ship is launched try to picture the new crew coming aboard for the first time. Imagine the unfamiliarity that a fledgling crew has trying to find its way around a maze of compartments that comprise this floating cold steel gun platform. Picture and feel the sweat and exhausting work that takes place when stores are carried aboard, along with the backbreaking job of hand loading ammunitions and the hours spent taking aboard tons of fuel oil and provisions.

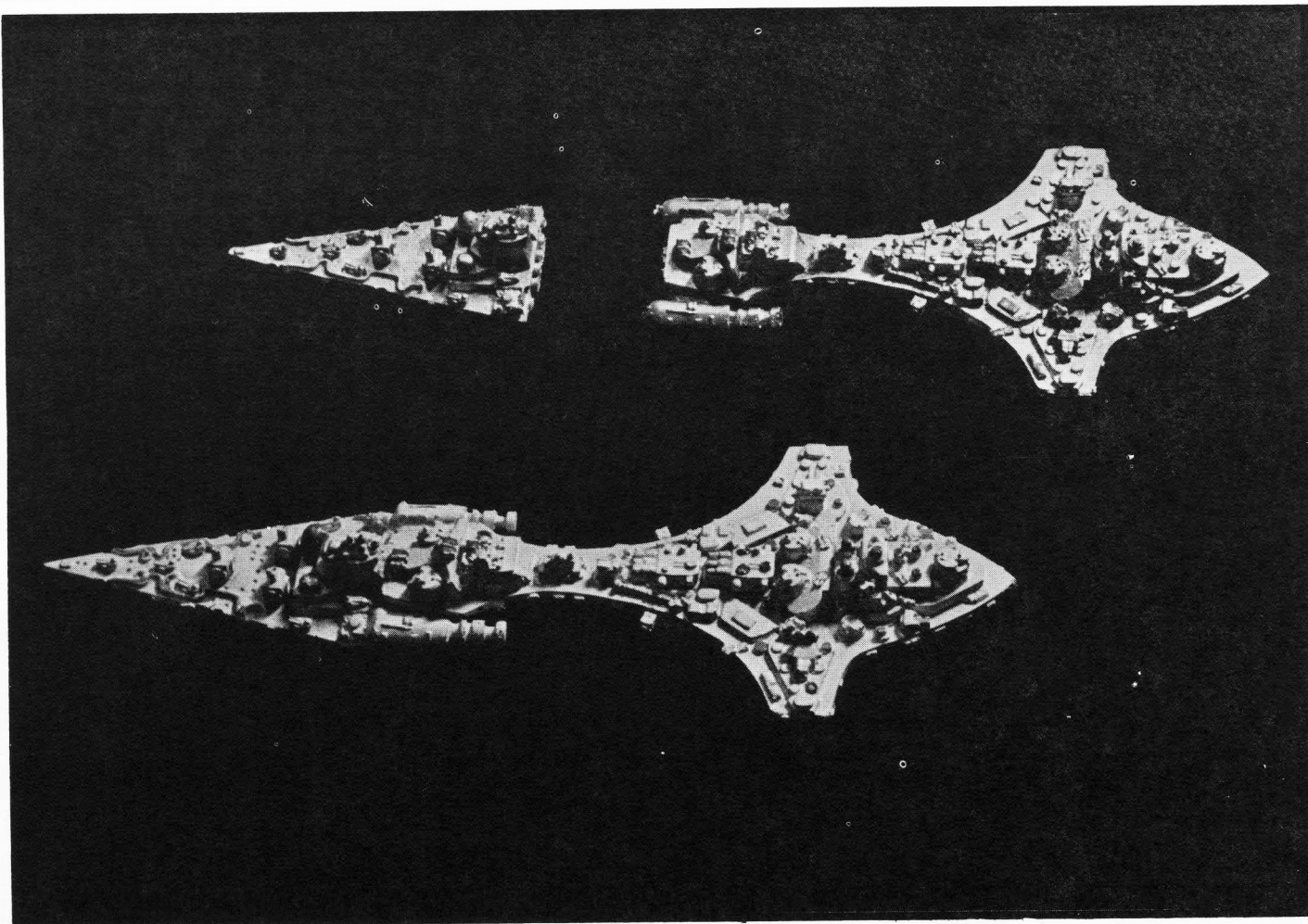
Then there are military functions as well as training exercises that must be spent at sea training the crew to function as that team keeping that throbbing piece of iron alive and full of fight. And then there is the national defense budget! As an example, in 1954 it cost the government about 65 thousand dollars a week just to keep the WISCONSIN alive tied to a pier. Underway the cost went up to about 85 thousand dollars a week! These are just some of the factors that go into owning and maintaining a warship.

Each Navy Different

Now look at different nationalities. The Germans, Italians, Japanese, English, French, and Americans each had their own distinct qualities and national standards as well as naval customs taking in traditions and separate distinct cultures. Each nation had and still has its own merits which cannot be denied. Naval history from both wars can bear this out but the important thing to remember is that they have been tried and tested through combat. Fleet Admirals going into combat had a tremendous responsibility resting on their shoulders whenever a fleet was committed to a particular action taking in one vessel or many. Brilliant decisions were made on one hand and on the other monumental disasters occurred. But whatever the outcome it rested on the individual ships and their crews. The ships were only as good as their crews that sailed them and that made the difference in the final outcome. Look at naval history from this standpoint and some of the arguments over why the BISMARCK was sunk, why we should have or not have super BB's, why carriers are better or inferior to other surface vessels and so forth may end.

The Human Factor

As you look over your model warships on a wargame table place a human factor in with them rather than attempt to treat them as simply war-machines with a single all-knowing, all-encompassing lord and master determining their fate. Keep in mind that your crews are not super-human and that the warship is as fragile as it is mighty. A simple thing like getting sea-water in your boilers or losing electrical power can have the same effect on a ship as someone turning off the ignition on your car as your clipping along the freeway at 65 mph! There are several factors that can be cranked into a naval game and this is where some good knowhow and historical research comes in handy. But whatever you do remember that you're doing it for fun! Naval battles are probably the "cleanest" type of combat in the world's arsenal of civilized warfare from the standpoint of civilians most likely not being involved as in land warfare but that is where it ends. These battles are usually short very violent extremely bloody exercises in human misery and carnage best fought on a make-believe table rather than for real.



A STARSHIP CONVERSION

By Jack Jamieson, Newark, Delaware

For that Superior Starship Fleet commander who is looking for something different to add to his space armada, conversions made from combinations of the current available craft may be the answer. Many unusual spaceships can result from letting your imagination run wild.

One successful design of many I have tried is a marriage of the TS05 SWIFTSURE Stellar Destroyer and CS80 TIGER Galactic Dreadnought. It is probably the easiest conversion I've ever attempted, and the result is one of the most pleasant. The first step is to file the back of the SWIFTSURE flat along the back. This will eliminate the rocket engines at the rear of the model and leave a flat surface up to the base of the ship's conning tower.

The next step is to flatten the front of the TIGER in a similar manner. The bullet shaped pods on the front of the craft should be trimmed to make a flat area along the forward edge. With this accomplished, the ships can now be joined together to give you a completely new craft.

The best type of epoxy to use for all conversions is a putty type used by many plumbers in their trade and can general-

ly be obtained at a plumbing supply outlet. Mix an appropriate amount of the epoxy and apply to the front of the TIGER. Then press the rear of the SWIFTSURE to the TIGER, taking care to align the bodies so the SWIFTSURE extends evenly in front of the TIGER and forms one continuous body. If proper alignment is a problem, I suggest you use crinkled aluminum foil on which to position your model. It will allow you to make a straight model and the foil will conduct heat—which is necessary if you use heat to cure the epoxy.

Joining the Parts

At this point the epoxy should have oozed out at the top and bottom of the models at their junctions. With a knife, clean and smooth this excess, making the junction as neat and filling as necessary to give a pleasing appearance. Laquer thinner or alcohol can be used to make the epoxy workable and smooth. Now allow the model to dry. This type of epoxy generally hardens in about two hours. This process can be speeded by heating but is not really necessary. I use an electric hot plate, but I imagine a warm oven would do the job just as well.

When heating 10-15 minutes and 250-280 degrees will generally be sufficient.

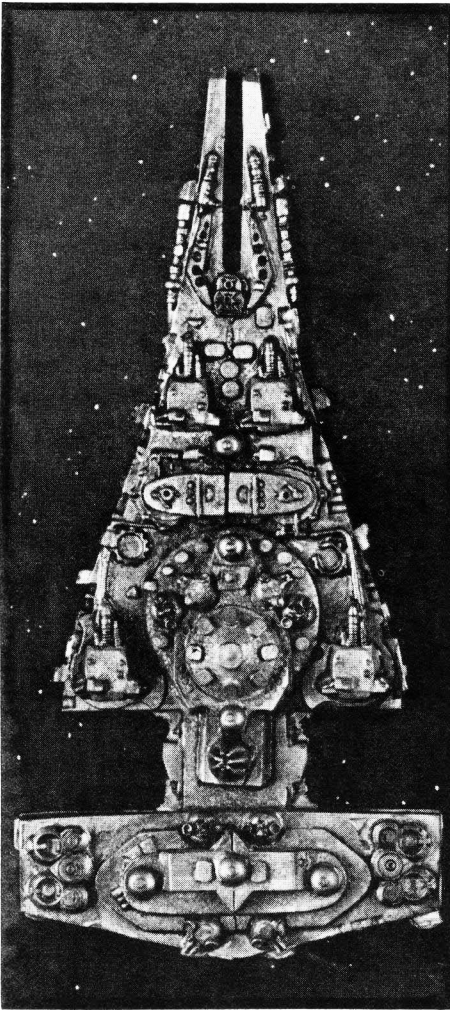
After the models are firmly joined into one, the underside must be cleaned and smoothed as the top had been. This side, however, is more difficult to do because now the epoxy is hardened. If you have access to a Dremel tool set or any other type of rotary speed tool, this epoxy can be cleaned in short order. This is how I do mine, but I suggest in lieu of this, the good old fashioned use of a file. The epoxy generally works well even though this method takes more time and effort. When this is done, paint your new model to conform with that of your favorite star fleet and use it to surprise your opponent in your next STARFLEET WARS battle.

If you like the looks of your completed model, you'll find that the SWIFTSURE and most of the Carnivore starships make rather nice models. It's almost like adding a complete new empire to your galaxy.

When adding any converted starship to your fleet for wargaming, I suggest you develop game values based on those of the original models involved; and after mutual agreement with your opponents. Converting can be fun and can add some unusual starships to your fleet. Watch the FORUM for more creations in the future.

STARSHIP DATA

Excerpts From A Forthcoming Starfleet Recognition Manual



Empire - Entomalian Empire
 Builder - Hivecraft Industries
 Classification - Galactic Dreadnought
 NEW MANTIS Class
 Offensive System - 2 Heavy lasers, 6 medium lasers, 6 MOSQUITO Attack craft, particle weapons
 Defensive System - Same as above, plus CID's
 Personnel - 42 Higher Mantis, 422 Lower Mantis

Named for the Entomalian species itself, the NEW MANTIS is a second-generation starship with considerable improvements over its predecessor the MANTIS.

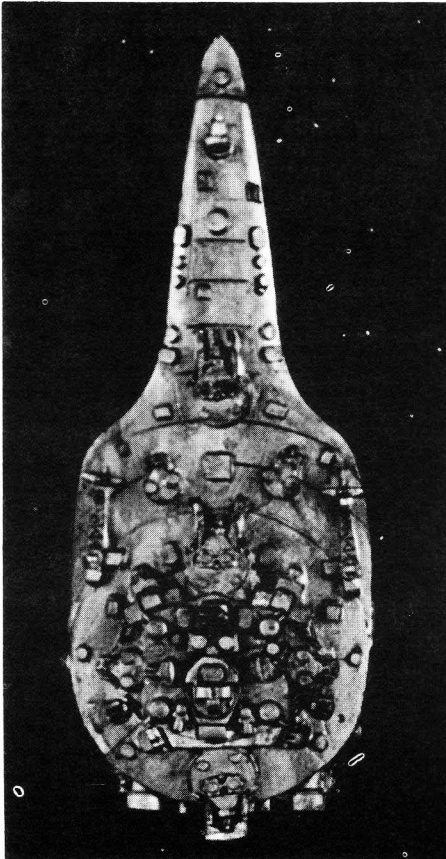
The principal improvement is in the number of laser positions it mounts. There are eight positions, located four top-side and four on the under-side. All of the positions appear to be of equal strength, but the two forward top-side mounts are backed by electron energy convertors which increases their strength to that of a normal heavy laser. This is a recent development perfected by the Entomalians after centons of experimentation in the field. It is expected they will fit other smaller starships with this

improved firepower system as soon as it is in general production.

In addition, the NEW MANTIS has one of the more powerful of "pincher" weapons known to be in use by the Entomalians to date. Extending prominently from the bow of the starship, it is used for ramming and clawing the hulls of opposing craft, damaging their air-tight integrity. This weapon is a standard one among Entomalian space craft, though varying in size and strength.

Power for the NEW MANTIS is supplied by an in-line series of nuclear reactors using a step-down transformer system to distribute the power to the four engines mounted in the rear of the ship. This system creates ample energy to propel the ship and operate its computers and laser mechanisms for extended periods.

MOSQUITO attack craft are employed for scouting and the NEW MANTIS has space to carry six of these speedy ships. They can be used, too, both offensively and defensively, but their small number normally prohibits their use in these roles unless operating in conjunction with the forces from a galactic attack carrier. For defense, the NEW MANTIS depends largely on her laser and particle weapons with the addition of the CID system.



Empire - Aquarian Alliance
 Builder - Watercraft Industries
 Classification - Galactic Dreadnought
 LEVIATHAN Class - 10 ships in class

Offensive System - Radon Bomb Catapult, 3 heavy laser turrets, particle weapons

Defense System - Underwater Operational Capability

Personnel - 38 Officers, 246 Aquanauts and 154 Aquabots (Aquatic Robots)

Largest of all Aquarian Starships, *the LEVIATHANS were the first ships designed by that empire. Beginning with this large ship, the Aquarians used its almost perfect aquatic design to develop the vessels of the smaller classes.

The greatest advantage the Aquarians have over the other empires in the Galaxy, is their ability to not only fly through space, but to submerge beneath the seas of the planets. Though they are considered to be one of the most powerful in defensive capabilities, the ultimate defense of the Empire's starships is to operate under water. In this natural element, they alone are the dominant force. When the Aquarians choose to take to the depths of the oceans of the planets, be it for offensive or defensive purposes, they can not be followed by the ships of any other Empire.

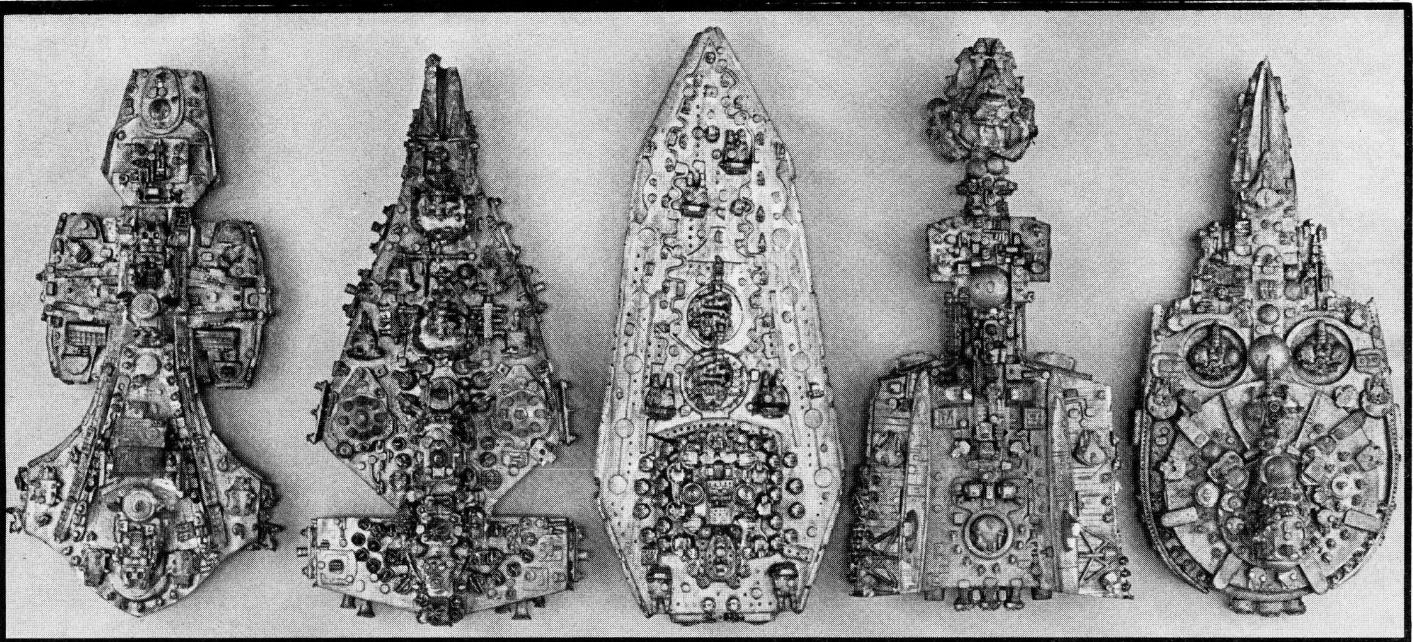
They operate as well at the oceans' depths as they do in outer space. Power under water is supplied by 8 infused-hydrogen emission propulsion plants which work in conjunction with the more conventional fission hyper-drive engines used in space. Cut-off of one system and the activation of the other is automatically controlled by the starship's drive and guidance computer. The systems can run simultaneously for short periods of time allowing one to take hold before the other is shut down.

As in other Galactic starships the majority of the domestic duties are accomplished by the Aquabots thus freeing the Aquarians for more important assignments. Both the offensive and defensive weapons are controlled by the Aquarians. It is believed they have not developed their Aquabots to a state where they can intelligently control the defensive systems as have some of the other Empires.

The particle weapon employed by the Aquarians is the Radon Bomb Catapult. This weapon is capable of being used both in space and beneath the depths. Its ability to be launched while the mother ship remains beneath the water is reminiscent of the early Poseidon missiles employed by the ancestors of the Terrans in the late 20th century.

Other ships known to exist in this class are GIGANTIC, OLYMPIC, TITANIC, MAJESTIC and WASSERLAND. It is anticipated more of this fine class will be produced since it has proven efficient to operate and easily adaptable to the environment of most of the planets found throughout the Galaxy.

*Now second largest to the new Super Galactic Dreadnought.



Carnivore

Entomalian

Terran

Avarian

Aquarian

SUPER GALACTIC DREADNOUGHT VALUES FOR STARFLEET WARS

The Super Galactic Dreadnoughts (SGD) are fought just like other ships in Starfleet Wars with one small change. Using the available power units calculate your factors for offense, defense and speed (Page 5 of the rulebook). Remember, at no time may you use more than your available power units or exceed your maximum offensive and defensive factors. The highest speed these ships may travel is a factor of 5. After you have calculated defensive factor. (These additional factors are found in the Data Table below.) These totals are your fac-

tors used to engage your opponent's ship for that turn.

ex. An undamaged VICTORY elects to travel at a speed of 3 (using 9 power units), has an offensive factor of 18 (using 324 power units) and a defensive factor of 12 (using 144 power units) for a total of 477 power units used. Note that this is less than the maximum of 480 available power units. The additional offensive factor of 7 is added to the calculated offensive factor of 18 giving a total of 25 offensive

factors. In the same manner the defensive factor is boosted from 12 to 19 (12 plus 7 = 19).

The additional offensive and defensive factors reflect the increased capabilities of these super dreadnoughts over earlier ships. The additional factors cease to be added when a ship suffers a loss of 75% of her power units.

We suggest limiting each power to a maximum of two SGD in any one battle in the interest of playability. More than this number may dominate the battle and decrease your enjoyment of the game.

CLASS	POWER UNITS	MAX. OFF. FACTOR	ADDITIONAL OFF. FACTOR	MAX. DEF. FACTOR	ADDITIONAL DEF. FACTOR	CIDS FACTOR	ATTACK CRAFT	PARTICLE FACTOR / RELOADS	WEAPONS
VICTORY	480	21	7	21	7	100% (60)	30	6	30
SWARM	420	20	5	20	5	100% (42)	15	6	28
GRYPHON	475	21	7	21	8	100% (50)	28	7	33
TYPHOON	460	21	4	21	5	100% (46)	20	5	26
POLECAT	450	21	5	21	3	100% (40)	18	12	34

STARFLEET WARS/MAATAC Q & A

This will become a regular column where readers are invited to submit their questions about our games in order that we may clarify the rules or make corrections to the games. Hopefully this short initial column will grow longer in response of our readers' questions and suggestions. The first statement applies to MAATAC, the rest are all applicable to Starfleet Wars.

- 1) On the MAATAC Data Table: The third sentence in the note under the Firing Table should read "Fortifications constructed during or prior to the game may not add one to their die roll.
- 2) On the Starfleet Wars Data Table under Table #1, the Power Unit table, 11 factors should cost 121 power units,

not 122.

- 3) The number of reloads given on page 9 of the SFW rule book is the total number of particle weapons on board. It is not the number of particle weapons per particle weapon factor.

e.g. A TIGER GD fires 6 particle weapons on turn one, it now has 10 left (16-6=10). On turn two it fires 6 more factors leaving only 4 reloads on board. On turn three it may only launch its 4 remaining particle weapons even though it has 6 launchers.

- 4) In multiple ship battles where you add your offensive factors together to fire on a single target, use the speed of the fastest ship in the attacking group as

the attackers speed in the Firing Table, Table #2.

- 5) The new starfighters METEOR, GNAT, B-JAY, EEL, and LEOPARD have the same values and capabilities as the earlier starfighters and can be used interchangeably with them in either Starfleet Wars or MAATAC.

- 6) An addendum sheet has been printed giving the values of the Super Galactic Dreadnoughts and the new transports. If you have not received one, you can get a free copy from ALNAVCO or Coulter-Bennett.

That's all for now. Send in your questions or suggestions as soon as you can so we can include as many as possible in our next issue of FORUM.

Note: Actual sizes of Super Galactic Dreadnoughts: about six inches; Actual sizes of Starbombers: about 1½ inches.

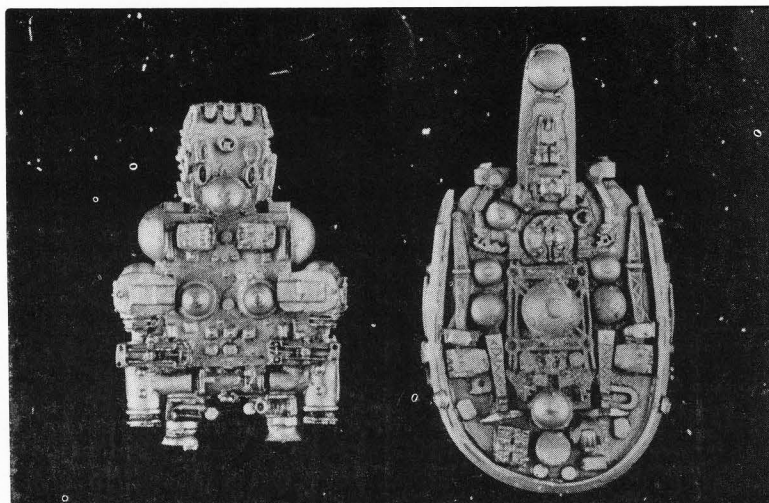
THE 10,000 POINT WAR

By Tony Morale, Great Neck, New York

Both sides should choose their ships secretly. The forces should not be over 10,000 pts. or any point limit you agree upon. Then proceed to fight the battle and may the best man win! To add a little spice, set up objectives for both sides. Also limit types of ships available such as more than two super BB's or two

WWII CV's are not permitted for example. You may not agree with the point system for each ship listed or implied, so make up your own in such case. Maybe now we could read about balanced fleet actions instead of ship vs. ship or straight BB fights.

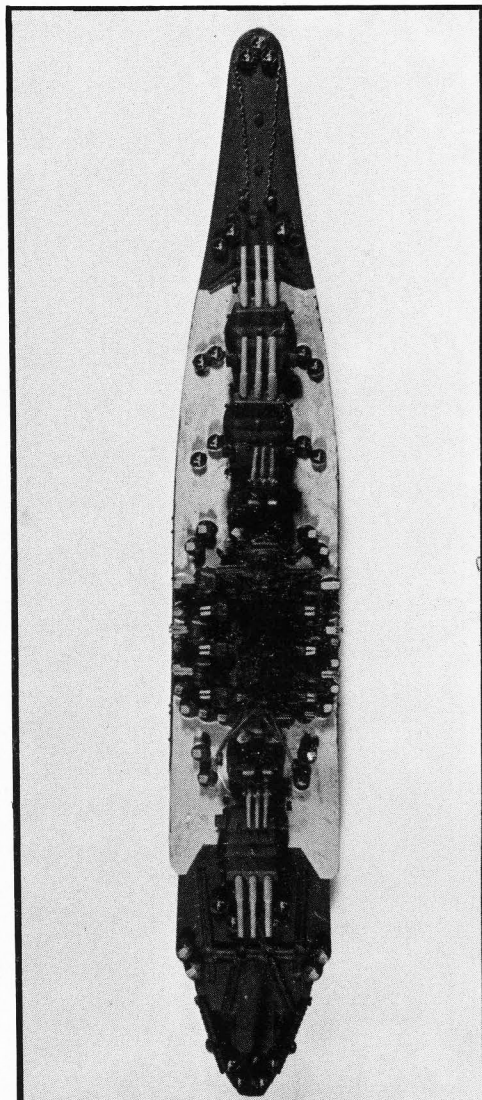
Super Carriers	2,500 pts.	(FORRESTAL class and up)
WWII Carriers	1,500 pts.	(MIDWAY's, ESSEX's, SHINANNO, TAIHO, FOCH's)
Pre-WWII CV's	1,000 pts.	(KAGA's, HIYU, SHOKAKU, ENTERPRISE, LEXINGTON, GRAF ZEPPELIN, etc.)
Light Carriers	700 pts.	(American & Jap CVL's, etc.)
Escort's CVE's	450 pts.	(American & Jap CVE's, etc.)
Super BB's	1,500 pts.	(German H, YAMATO, MONTANA, IOWA, etc.)
3rd Gen. BB's	1,100 pts.	(BISMARCK, S. DAKOTA, WASHINGTON, etc.)
3rd Gen. BB's	950 pts.	(LITTORIO, KGV, etc.)
2nd Gen. BB's	900 pts.	(All plans for scrapped or not completed BB's circa Washington Naval Treaty of '21, etc.)
2nd Gen. BB's	800 pts.	(WWII rebuilds — NAGATO, TENN., etc.)
2nd Gen. BB's	700 pts.	(Battleships of the WWI era)
1st Gen. BB's	500 pts.	(Pre-WWI dreadnoughts)
Modern CA's	600 pts.	(SALEM class and pocket BB's)
WWII CA's	500 pts.	(BALTIMORE, HIPPER's, MOGAMI's, ZARA's, TONE, CHOKAI, ATAGO, etc.)
Pre WWII CA's	350 pts.	(U.S. treaty cruisers, British Treaty Cruisers, BOLZANO, KIROV) etc.
" "	300 pts.	(FURATAKA, AOBA, EXETER, ALMIRANTE, BROWN, etc.)
Modern CL's	350 pts.	(SVERDLOV's, WORCHESTER, CLEVELAND, CHAPAEV, BELLFAST, SOUTHAMPTON, FIJI, MOGAMI as CL)
Pre-WWII CL's	250 pts.	(ARETHUSA, HOBART, LEANDER, Italian and German WWII lights)
WWI type CL's	175 pts.	(OMAHA, Jap CL's, EMDEN III)
WWI CL's	100 pts.	(All Ger British, etc., WWI CL's)
DL's	100 pts.	(All 5.9, 5.5, and 8 gunned DD's)
DD's	50 pts.	(All WWII DD's)
WWI DD's	25 pts.	(All 4 stack US DD's, etc.)
Subs	50 pts.	(All Jap, US, Br., Ger subs of WWII)
Battlecruisers	850 pts.	(All those planned but not completed by Wash. Naval Treaty of '21)
WWII CB's	850 pts.	(German O class)
" "	825 pts.	(SCHARNHORST, ALASKA, KONGO, DUNKERQUE, HOOD, etc.)
2nd Gen. CB's	750 pts.	(REPULSE, MACKENSEN, KONGO of WWI, TIGER)
WWI CB's	650 pts.	(All German & British CC's)
Armoured CA's	300 pts.	(All German, U.S., British, etc. of WWI)



CS86

Superior's New Galactic Transports

WS67



Superior's 1:1200 Scale Models of IOWA [L] and YAMATO [R].

NOW HERE THIS!

The following individuals are interested in contacting others with similar interests for communication purposes, to form clubs, etc.

SP/4 Neil Wetherington 516728111, 207th Aviation Company, APO New York 09102 (Main interest: Naval)

If you'd like your name listed here, just send it in. Where possible, indicate main area of interest.

WARGAME CLUB DIRECTORY

RICHLAND, TEXAS - Richland College Wargamers, specialists in 1:1200 naval and other miniature and board games; Meets at 2000 hrs., every Wednesday evening; Contact Chuck Delafield, Professor of History at 214 424-8330

Want your wargame club listed here? Just send us the info and it shall be done. Great way to get new members and to establish contact with other clubs.



"A Ring of Fire" is momentarily formed as a destroyer's five inch guns blast away.

A NAVAL BATTLE BRIEF

The Battle Of Trassafaronga 30 November 1942

American

Task Force 67

TG 67.2
CA MINNEAPOLIS
CA NEW ORLEANS
CA PENSACOLA
CA NORTHAMPTON*
CL HONOLULU

TG 67.4
DD FLETCHER
DD DRAYTON
DD MAURY
DD PERKINS
DD LAMSON
DD LARDNER

*Lost in this Action

Japanese

DD Squadron 2

DD Patrol Unit
DD NAGAMI
DD TAKANAMA*

Transport Unit 1
DD MAKINAMI
DD KUROSHIO
DD OYASHIO
DD KAGERO

Transport Unit 2
DD KAWAKAZE
DD SUZUKAZE

On 30 November 1942, he makes his first run heading on a southerly course past Savo Island on his left. A course change takes him along the coast of Guadalcanal (two miles distant) heading southeast. Coming west from Espiritu Santo into "Ironbottom Sound" is Rear Admiral Carleton Wright's Task Force 67 of five cruisers and six destroyers. The Americans have radar (the Japanese do not) and make first contact at 2306 bearing 284 degrees at 23,000 yards.

A savage battle ensues with the result that the Japanese sink NORTHAMPTON and put three other cruisers out of action for almost a year at the cost of one destroyer lost. The reasons for the victory are given as superior Japanese gunfire and torpedo technique (and those "Long Lances!") and because the Japanese force had worked and trained together while Task Force 67 was steaming together for the first time.

Ed. Note: What would you have done differently if you had been either commander? Refight the battle and send the results into FORUM for publication!

A FINAL WORD FROM PETE PASCHALL

Well, that's our first issue. Hope you liked it well enough to buy the second which we plan to have ready the first part of 1980. We're hoping for a quarterly publishing schedule but this is dependent on your acceptance.

We're really not trying to compete with the many fine wargaming publications out today and do feel that we offer a unique editorial service. In essence, we are a house organ for Superior Models and will thus be concentrating on space, naval and armor categories although we may wander a bit here and there. And of course, Superior is constantly breaking new ground in wargaming products so we never know where that will take us.

As you "Old Timers" have probably noticed, FORUM is patterned after the old Alnavco LOG which was extremely popular among a small band of naval aficionados. That was the trouble...the band was too small...and costs got too high. By expanding the editorial scope to include space and armor (all three being fairly allied), we hope to have a magazine with broad enough scope to attract an audience large enough to have it prosper and grow. But it's a numbers game, so please...BUY YOUR OWN COPY!

FORUM is just that...a forum for you. Please send in your comments, good and bad, on any article, report, etc. that appears in the magazine. We'll publish them as space permits. (We used to have some fantastic verbal battles in the LOG). If you want to author an article, do so and send it in. Publication will be on the basis of merit. And please, send in your wargame reports.

Miscellaneous: We carry no advertising other than that of Superior. If you send in any diagrams, make sure they are in black ink. Pencil very hard to pick up. FORUM not available by subscription: Only by mail order and/or your favorite hobby store. And if that store is not carrying the Superior lines, ask them WHY NOT?! We realize we're light on armor editorial in this first issue. Just worked out that way. Send some in!

See you next issue. Write me and let me know what you thought of the first.

Regards,

Pete Paschall

Pete Paschall

